

# POLLUTION PREVENTION



***Presented By:*** The Directorate of  
Safety Health and Environment's  
Pollution Prevention Program

**IT JUST MAKES SENSE!**

**Primo Levi**  
**1919-1987**



# WHAT IS P2 ?

- Source Reduction
- Material Substitution

# WHAT IS P2 ?

## Source Reduction





# WHAT IS P2 ?

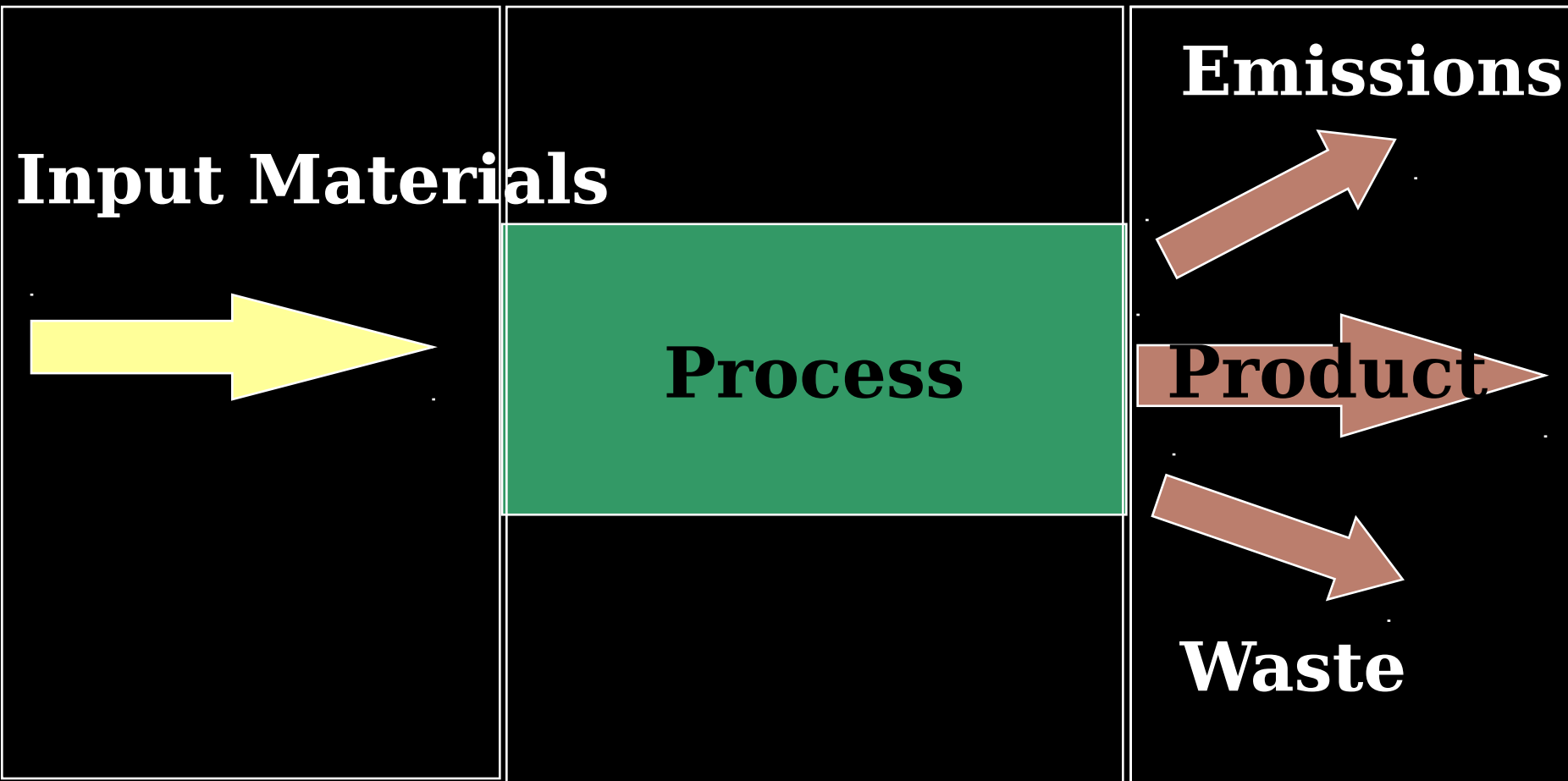
Material Substitution



# What is “Environmentally Preferable

"...products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose..."

- Executive Order 13101

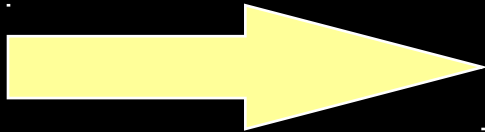


# Pollution Prevention

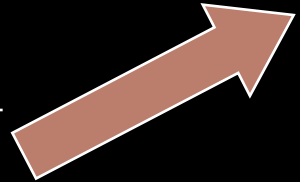
**Pollution**  
**on**

**Control**  
**Emissions**

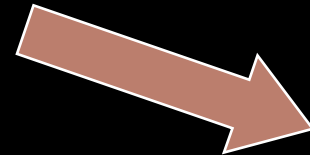
**Input Materials**



**Process**



**Product**



**Waste**

# P2 IS REQUIRED

- Pollution Prevention Act of 1990
- EPCRA
- EO 13423 “Strengthening Federal Environmental, Energy, and Transportation Management”



■ Number of locations: 1786

■ Number of active containers: 99,940

↓ 40%

■ Total lbs: 24,468,349

↓ 25%

■ Number of different products: 22,138

↓ 44%



# BENEFITS OF P2

- Improved worker health and safety
  - Minimize exposure to hazardous products
  - Improved training leads to safer work practices



# BENEFITS OF P2

## ■ Cost Savings

- Savings in material, supply, and tracking costs
- Reduced liability
- Elimination of expensive clean-up costs





# BENEFITS OF P2

- Environmental Protection
  - Cleaner air and water
  - Conserve natural resources
  - Reduce pollutants entering the environment

# SEVEN P2 TECHNIQUES

- Policy/Procedural Change
- Equipment Modification
- Material Reuse
- Material Substitution
- Process Efficiency Improvements
- Improved Housekeeping
- Inventory Controls



# POLICY OR PROCEDURAL CHANGE

## Technique 1

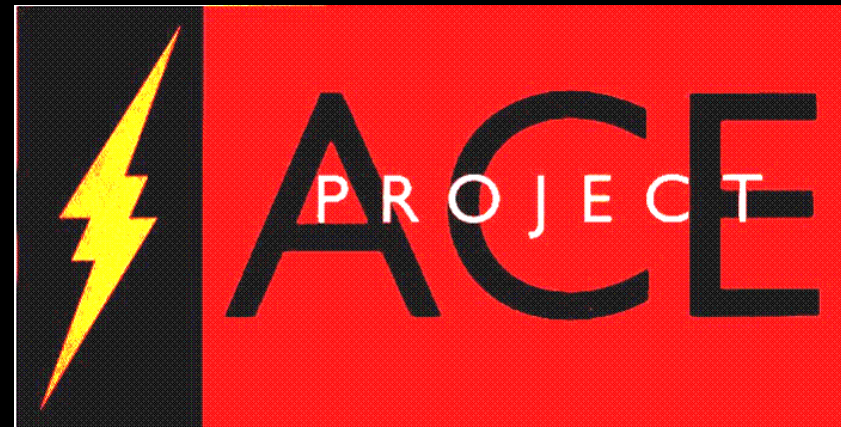
- APG has an Environmentally Preferable Paint Policy



# POLICY OR PROCEDURAL CHANGE

Technique 1

- Aberdeen Conserves Energy (ACE)
  - Initiated in 1997
  - Compressed work schedule
  - Holiday closings
  - \$1 million/year savings



# POLICY OR PROCEDURAL CHANGE

Technique 1

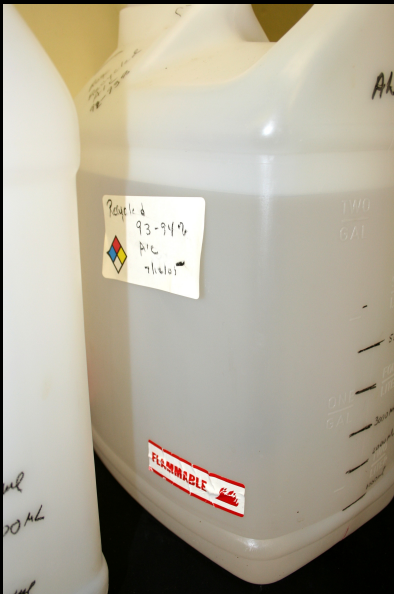
- Re-Nu-It Center's paint distribution policy
  - Issues only essential quantities
  - Accepts excess for redistribution



# EQUIPMENT MODIFICATION

## Technique 2

- The MRICD histology lab recycles ethanol using a distillation unit





# EQUIPMENT MODIFICATION

## Technique 2

- DOL/EDSI replaced its solvent degreasers with aqueous parts washers.



# EQUIPMENT MODIFICATION

## Technique 2



- DIO has replaced incandescent Exit signs with LED Exit signs. There are 40,000 exit signs.

- DIO has replaced 98% of PCB containing fluorescent light ballasts w/PCB free ballasts.

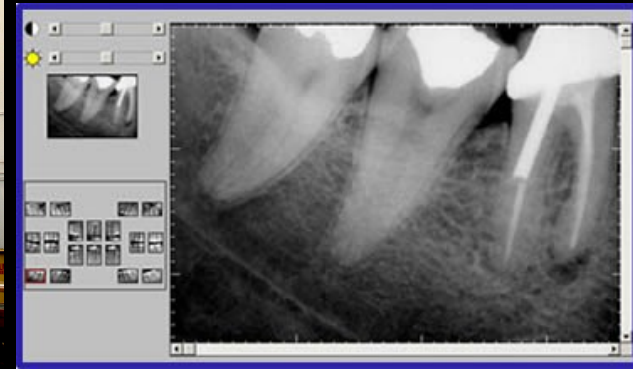




# EQUIPMENT MODIFICATION

## Technique 2

- Digital Photography
- X-Ray
  - ATC
  - DSHE
  - ECBC
  - KUSAHC



# EQUIPMENT MODIFICATION

## Technique 2

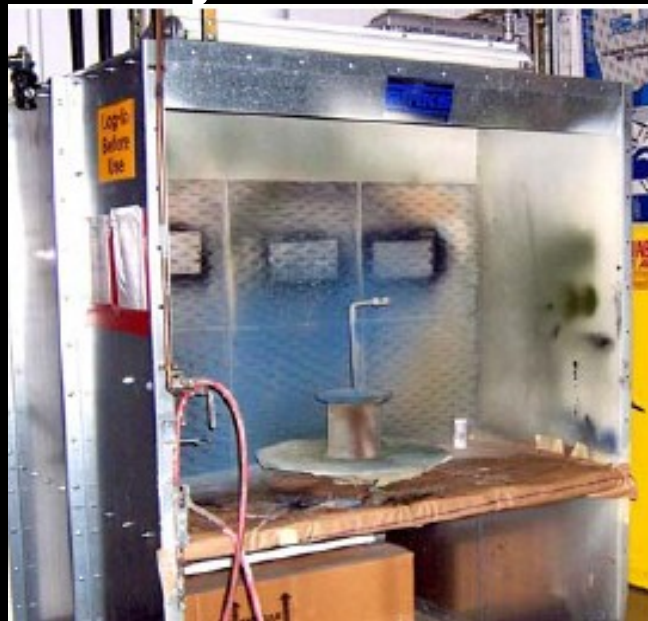
- Digital photography eliminates all the chemicals and waste associated with traditional wet processing.
- ECBC is saving \$500 in annual disposal costs by using digital photography.



# EQUIPMENT MODIFICATION

## Technique 2

- ARL, ATC, and Garrison large-scale painting operations employ High-Volume-Low-Pressure paint guns for higher transfer efficiency.



# EQUIPMENT MODIFICATION

## Technique 2

- Alternatively-Fueled Vehicles
  - 12 CNG
  - 80 bi-fueled
  - 42 gas/ethanol



# EQUIPMENT MODIFICATION

## Technique 2

- In 2005 ECBC phased out mercury thermometers saving \$250 a year and eliminating a 50lb/year waste stream





# REUSE OF MATERIALS

## Technique 3

- In 2005, DSHE facilitated the deconstruction of two large ship engines.



# REUSE OF MATERIALS

## Technique 3

- In April of 2005, DIO gave 256 gallons of unused, unopened latex paint to the Loading Dock in Baltimore. Saving \$4500 in disposal costs.



# REUSE OF MATERIALS

## Technique 3

- ATC used 27,000 lbs of Black Beauty Sand Blast Media to fill potholes on its ranges instead of turning it in as waste.





# REUSE OF MATERIALS

## Technique 3

- All major Installation activities that generate scrap metal recycle it through DRMO



# REUSE OF MATERIALS

## Technique 3

### ■ DOL/EDSI

- Launder and reuse rags used in vehicle maintenance.
- The oils recovered from laundering is used for fuel.
- Eliminates hazardous waste.



# REUSE OF MATERIALS

## Technique 3

- ATC and OC&S filter and recharge used antifreeze. This saves ~\$30,700/year.



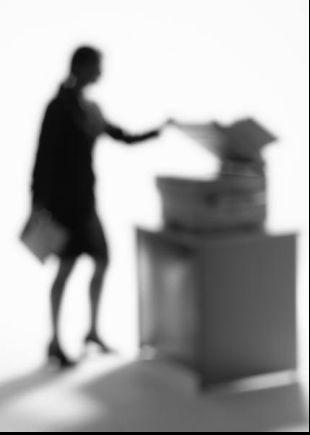
# REUSE OF MATERIALS

## Technique 3

- ATC and ARL capture silver generated by the x-ray development process.
- DENTAC captures the silver discharged during film processing.







# REUSE OF MATERIALS

## Technique 3

### ■ ATC

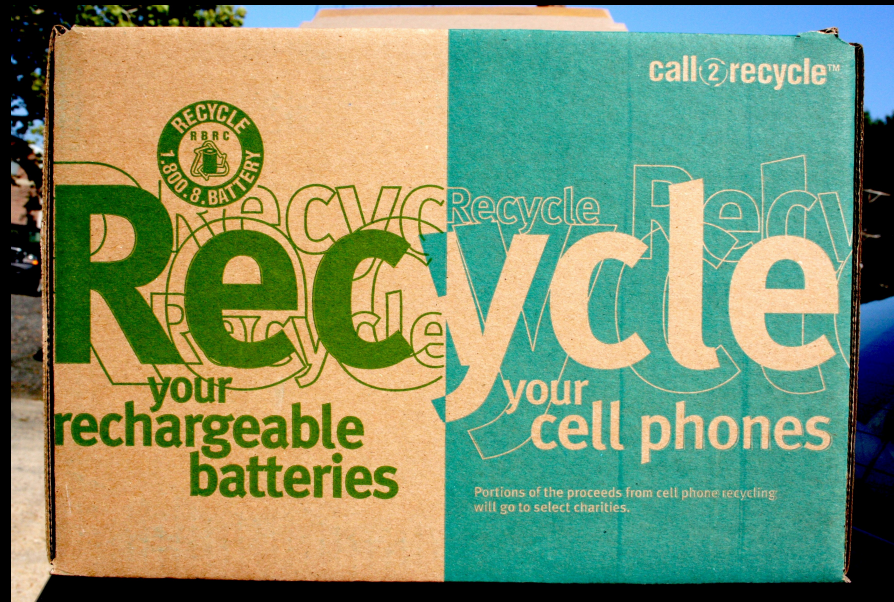
- Reuses chemicals from lab processes until they are completely spent.
- Returns fuels being tested to users for use
- Purchases remanufactured toner cartridges and returns old cartridges (saves ~\$9,700/year)



# REUSE OF MATERIALS

## Technique 3

- ECBC sent over 10,000 batteries to be recycled saving approximately \$10,000 in hazardous waste disposal



# REUSE OF MATERIALS

## Technique 3

- All major Installation activities use re-treaded tires on commercial vehicles



# MATERIAL SUBSTITUTION

## Technique 4

- The APG P2 Program labels environmentally preferable products in the Office Eagle.





# MATERIAL SUBSTITUTION

## Technique 4

- DOL/EDSI replaced aerosol solvents with compressed air sprayers and citrus-based cleaners for cleaning and degreasing.



# MATERIAL SUBSTITUTION

## Technique 4

- All major activities use rechargeable batteries in their two-way radios and HITS barcode scanners.



# MATERIAL SUBSTITUTION

## Technique 4

- ATC switched from Brake Kleen Solvent (18oz, aerosol containers) to ShopSolv (55 gal drums)
- ShopSolv is dispensed into hand-held, air-charged sprayers.
- Savings: ~\$2,400/year



# MATERIAL SUBSTITUTION

## Technique 4

- ARL firing ranges replaced lead rounds with tungsten rounds in weapons



# MATERIAL SUBSTITUTION

## Technique 4

- ECBC replaced a paraffin/wax mixture with a nontoxic water soluble adhesive in 2000.
  - Eliminating a 17,000 lb/year waste stream
  - Saves \$11,400 (eliminates costs for disposal, drums, administration, training, and storage)
  - Can be discharged to the sanitary sewer instead of being disposed of commercially



# MATERIAL SUBSTITUTION

## Technique 4

- MRICD installed recycled tire parking curbs



# MATERIAL SUBSTITUTION

## Technique 4

- All Activities have replaced aerosols with pump spray products wherever feasible.





# PROCESS EFFICIENCY IMPROVEMENTS

## Technique 5

- The golf course uses Integrated Pest Management and Best Management techniques to save money and prevent pollution.





# PROCESS EFFICIENCY IMPROVEMENTS

## Technique 5

- MRICD increased efficiency and reduced waste due to human error by using an automatic pipetting machine.



# PROCESS EFFICIENCY IMPROVEMENTS

## Technique 5

- Install occupancy sensors
- Install timers on all exterior lights
- Ensure that windows and air-conditioned boundary doors are left closed.
- Ensure that computers, printers, copiers, and large equipment are set to sleep mode or turned off at night.



# IMPROVED HOUSEKEEPING

## Technique 6

- Segregate hazardous from non-hazardous waste
- Designate storage areas for all equipment, materials, and waste
- Use drip pans for equipment cleaning
- Keep containers of solvents and other materials closed
- Make regular inspections of work areas for cleanliness



# INVENTORY CONTROLS

## Technique 7

- Order materials on an as-needed basis
- If ordering in bulk check with vendors to see if they will take back unused portions
- First in- first out
- Only use hazardous materials when necessary

# INVENTORY CONTROLS

## Technique 7

- Don't use solvents if there are effective substitutes (i.e. hand cleaning)
- Try to use on multipurpose solvent rather than several solvents.
- Preventative maintenance

# INVENTORY CONTROLS

## Technique 7

- ARL reduced its inventory of HM by 20% by voluntarily eliminating stagnant inventories.
- CHPPM only orders the smallest quantity deemed necessary to reduce turn-in of excess chemicals.

# INVENTORY CONTROLS

## Technique 7

- ECBC redistributed over 600 lbs. of welding supplies and spray paints earmarked for disposal. Saving ~\$600.
- ATC reduced their inventory by 40% by creating a HM pharmacy, monitoring orders, and disposing of outdated products and chemicals

# INVENTORY CONTROLS

## Technique 7

The hazardous material barcode color changes every year.

Barcode#	Year Barcoded
1A010000	2001
2A010000	2002
3A010000	2003

**Put Your Inventory In Order**

**HAZMART/HITS**  
hotline  
1-410-436-7480

2005  
2004  
2003  
2002  
2001  
2000  
1999  
1998  
1997  
1996-1997  
1996

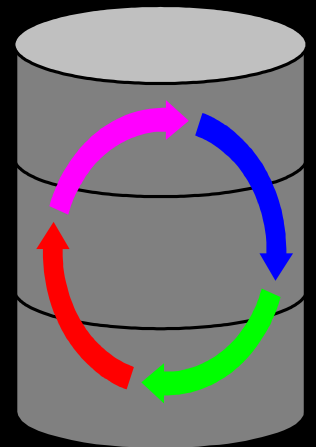
**AP<sub>2</sub>G**  
Pollution  
PREVENTION

**Move hazardous materials with  
oldest BARCODES to the front**



# HM Policy Overview

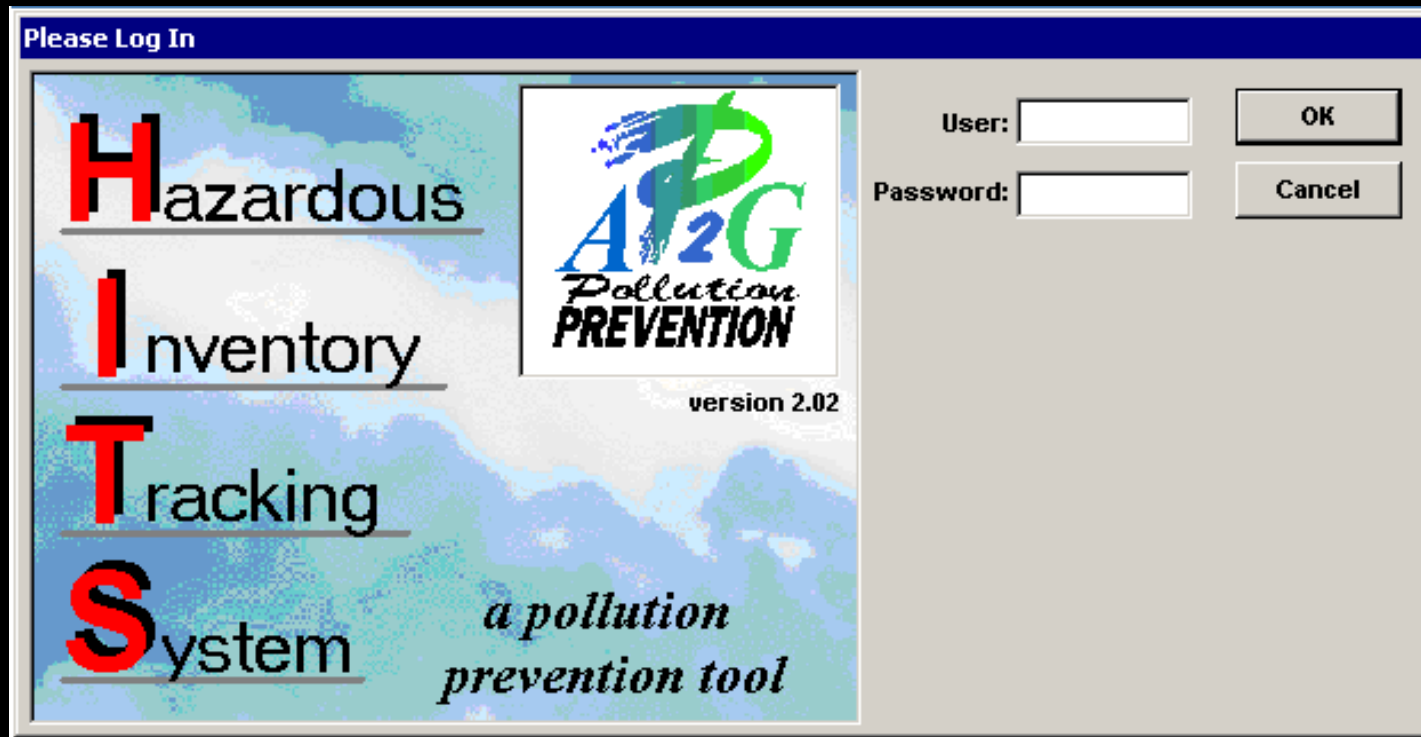
- Use HM only when required
- Use substitutes
- Purchase essential quantities
- Handle properly



# The HAZMART

- Primary point of entry for hazardous materials
- Reduces time spent managing inventory
- Generates accurate reports (i.e. TRI, EPCRA, etc)





- Hazardous Inventory Tracking System (HITS)
- Tracks the life of hazardous materials on post

**Product Information: 146394 - DAP COVE BASE ADHESIVE**

Identifiers/ Physical

Containers/ Packaging

Chemical %

Manufacturer

MSDS

Hazard Ratings

Safety/Handling

Storage/Disposal

**Alternative Products**

Processes

OK

Item ID		Trade Name	Ranking	Manufacturer
14598		HENRY 356 MULTIPRO PREMIUM	Acceptable	HENRY, W.W., COMPANY (ARMSTRONG
147156		LATEX LIQUID NAILS LATEX ADHESIVE	Acceptable	MACCO ADHESIVES

E  
P  
P



P  
B  
T

B  
D

T  
R  
I

Get chemicals or products you need **FAST** and  
**FREE !!**



# **FREEBIES**



**Updated  
Weekly!!!**

**Get unneeded hazardous materials off your  
shelves and into the hands of someone who  
can use them.**



## Feedback

Search

**Force Protection Status for APG is**

For APG Services Information, Please visit our new [APG Services Site](#) for more information or service requests which include Consolidated Service Desk, DIO Service Desk, ASAP, TAP, Minority College Relations, e-Ordinance University, Army Suggestion Program, APG Tax Center, Sexual Abuse Prevention and Response or services.

ation. Please visit our [Intranet Web Site](#) for events, policies, Regulations

Adjutant Office

Civilian Personnel Advisory Center

## Information Management

## Installations Operations

## Law Enforcement and Security

## Mail & Records Management

MWR

## Safety, Health and Environment

Of Taxpayer	Transferor
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- for more information, check the links below.

**BRAC** Base Realignment and Closure 2005

## Department of Defense Recommends changes at Aberdeen Proving Ground Under BRAC 2005

APG BRAC Core Team is launching its own new **APG BRAC Web Site for MIL Users only**

Voting Assistance Office - 410 278 3000 Monday thru Friday 0700-1700  
Military and Civilian Locator Service (0730-1600, Mon-Fri) - 410-306-1403  
Information Operator - 410-278-5201 (Directory Assistance)



[Units/Tenants](#)[Newcomers](#)[Regions](#)[MWR](#)[APG IntraNet](#)[APG Search](#)[Disability Issues](#)[Weather](#)

organizational missions, soldiers, employees and residents of Aberdeen Proving Ground (APG). Provide overarching hazards management to the entire APG community, as well as a commitment to stewardship. Responsibilities span the breadth of regulatory compliance, natural and cultural resource conservation, environmental restoration and sustainment, fire and emergency medical services, emergency management, safety and occupational health, and surety.



### Installation Safety Division

Bldg 4304

[IMNEAPGSHS@apg.army.mil](mailto:IMNEAPGSHS@apg.army.mil)

410-306-1090/1095

### Environmental Compliance Division

Bldg 4304

410-306-2260/2259

### Environmental Conservation and Restoration Division (includes environmental cleanup program)

Bldg E4430

410-436-4429/3320

### Fire & Emergency Services

Bldg 2200

410-306-0501/0502

[fireinfo@apg.army.mil](mailto:fireinfo@apg.army.mil)



**Pollution Prevention Program**, Bldg4304, 410-306-2275



Quick Link

Preferred Paints

P2 Plan

HITS Manual

Freebies

Past AP2G Headlines

## Aberdeen Proving Ground Pollution Prevention Program

[P2 HOME](#)[POLICIES](#)[HAZ MAT](#)[EPP](#)[TRAINING](#)[RELATED LINKS](#)

### APG Awarded Integrated Pest Management (IPM) Star Certification



Over the last 20 years annual pesticide application at Aberdeen Proving Ground has been cut almost in half. Even more impressively, no pesticides have been sprayed inside the Child Development or Youth Centers since 1988.

APG was recently awarded the Integrated Pest Management (IPM) Star Certification Award for this notable achievement. APG is only the sixth installation in the Nation to be designated as IPM Star Certified.

For more information, click [here](#).

### Vanpooling



**Do you hate your commute?**  
**Do you want to save time and money?**  
**Consider vanpooling!**

**Save Money!** With gas prices increasing it affects the bottom line, your disposable income and your ability to enjoy the fruits (e.g., theater, fancy restaurant, weekend trips) of your labor. If you vanpool you'll only pay for a share



## Aberdeen Proving Ground Pollution Prevention Program

[P2 HOME](#) [POLICIES](#) [HAZ MAT](#) [EPP](#) [TRAINING](#) [RELATED LINKS](#)

### **FREEBIES**

**ALL FREEBIES  
ITEMS**

**Chemicals**

**Chemicals, Misc.  
Specialties.**

**Medical, Dental,  
Vetrinary, Equip.**

**Oils & Greases:  
Cutting, Lub.,  
Hydraulic**

**Paints, Dopes,  
Varnishes, Stains**

This page updated 04/04/07.



## Aberdeen Proving Ground Pollution Prevention Program

[P2 HOME](#) [POLICIES](#) [HAZ MAT](#) [EPP](#) [TRAINING](#) [RELATED LINKS](#)

### FREEBIES

#### Medical, Dental, Veterinary, Equip.

Trade Name	Measure	Size	Type	Bar Code	Sub-Category
GLYCINE P.A.	GRAM	250	PLASTIC BOTTLES OR J	7A044219	DRUGS, BIOLOGICAL, & OFFICIAL
GUANIDINE THIOCYANATE	GRAM	250	GLASS BOTTLES OR JUG	6A189823	DRUGS, BIOLOGICAL, & OFFICIAL
PARAFORMALDEHYDE, PRILLS 95%	KILOGRAM	1	GLASS BOTTLES OR JUG	3A006003	DRUGS, BIOLOGICAL, & OFFICIAL

For more information regarding these materials contact the [HAZMART](#) (410-436-7480).

Last Modified on: 04/06/2007 14:29:45 EST

This page updated 04/04/07.



A stylized illustration of a hand with a green vine wrapped around its index finger. The hand is light blue with a darker blue cuff. The vine is green with small leaves.

# What's Your Role?

- Keep HM inventory current and to a minimum
- Use Freebies
- Stay current in your field
- Ask us for help
- Think P2 while carrying out everyday activities





**PRACTICE P2 EVERY DAY**

**IT'S A WAY OF LIFE**



# **APG's Pollution Prevention Program**

**Maia Kaiser**

**maia.n.kaiser@apg.army.mil**

**4-2273**



**<http://www.apg.army.mil/apghome/sites/directorates/AP2C/Index.htm>**